

REMARKS / ARGUMENTS

Claims 1-4 and 6-10 are pending in this application. By this Amendment, Applicants AMEND Claim 8.

Applicants' counsel appreciates the courtesies extended by the Examiner and the Examiner's supervisor in the personal interview of March 22, 2006. In the personal interview, Applicants' counsel explained that Nakashima does not appear to teach or suggest the specific structural arrangement of features recited in Claim 1, including the features of "a base-band IC, a memory IC and an RF-IC, said base-band IC and memory IC being mounted on the first side of said multi-layered substrate, and said RF-IC being mounted on the second side of said multi-layered substrate" and "a shielding ground electrode pattern interposed between the first side of said multi-layered substrate on which said base-band IC and said memory IC are mounted and the second side of said multi-layered substrate on which said RF-IC is mounted." The Examiner and the Examiner's supervisor agreed that Nakashima does not teach these features.

In addition, the Examiner's supervisor alleged that the features recited in Claim 6 does not further limit Claim 1. Applicants respectfully disagree.

Claim 6 recites the feature of "the shielding ground electrode pattern is interposed between the first side of said multi-layered substrate on which said base-band IC and said memory IC are mounted **and said RF passive component incorporated in said multi-layered substrate**" (emphasis added). This feature clearly further limits the feature of "a shielding ground electrode pattern interposed between the first side of said multi-layered substrate on which said base-band IC and said memory IC are mounted **and the second side of said multi-layered substrate** on which said RF-IC is mounted" (emphasis added) recited in Claim 1. In particular, the feature recited in Claim 6 further limits the location of the shielding ground electrode pattern. Accordingly, Applicants respectfully submit that Claim 6 further limits Claim 1.

Furthermore, the Examiner's supervisor alleged that the term "via hole" recited in Claim 8 is unclear, and suggested that this term be changed to "through hole." However, the term "via hole" is a conventionally well-known term of art, and is used

throughout the originally filed specification (see, for example, the third full paragraph on page 13 and the first full paragraph on page 14 of the originally filed specification). Accordingly, Applicants have not amended Claim 8 to change "via hole" to --through hole-- because "via hole" is clear and definite.

Claims 1-4 and 6-10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakashima (U.S. 6,526,270). Applicants respectfully traverse the rejection of claims 1-4 and 6-10.

Claim 1 recites:

"An RF module comprising;
a multi-layered substrate having first and second sides;
a base-band IC, a memory IC and an RF-IC, said base-band IC and memory IC being mounted on the first side of said multi-layered substrate, and said RF-IC being mounted on the second side of said multi-layered substrate;
an RF passive component incorporated in said multi-layered substrate;
a wiring pattern incorporated in said multi-layered substrate, said wiring pattern interconnecting said base-band IC and said memory IC; and
a shielding ground electrode pattern interposed between the first side of said multi-layered substrate on which said base-band IC and said memory IC are mounted and the second side of said multi-layered substrate on which said RF-IC is mounted." (Emphasis added.)

The Examiner alleged that Nakashima teaches all of the features recited in Applicants' claim 1, including an RF module (Fig. 1) comprising a multi-layered substrate (e.g. circuit board/portable telephone 50), a base-band IC (IC 2 or IC 55), a memory IC (ROM 11, RAM 10), an RF-IC (3 or 58), a wiring pattern, and an RF passive component.

First, contrary to the Examiner's allegations, Nakashima does not teach an "RF module" as recited in Applicants' claim 1. Nakashima specifically discloses, in column 1, lines 6-9, an IrDA (infrared data association) integrated circuit device used in a portable telephone to achieve infrared data communication. Infrared rays are not radio waves because the frequency of infrared rays is not a radio frequency (RF). Note column 4, lines 27-31 and column 6, lines 11-14 of Nakashima disclose that the analog front end (4) emits and senses infrared rays. Therefore, the device of Nakashima

Serial No. 09/884,274

March 28, 2006

Reply to the Office Action dated November 30, 2005

Page 6 of 8

neither receives nor transmits data via radio frequency (RF) waves. Accordingly, Nakashima certainly fails to teach or suggest the features of an "RF-IC" and an "RF passive component" as recited in Applicants' claim 1.

In Section No. 3 of the outstanding Office Action, the Examiner alleged, "Nakashima does disclose an IrDA modulation/demodulation integrated circuit device 3, and like an RF module, it is capable of communicating via radio frequency (RF) waves (See col. 1 lines 18-27). Applicants respectfully disagree.

Lines 18-27 of col. 1 of Nakashima disclose:

In addition, to achieve IrDA-complying infrared data communication with an external personal computer 60 or the like, the portable telephone 50 also incorporates an IrDA modulation/demodulation integrated circuit device 58. For example, **the IrDA modulation/demodulation integrated circuit device 58 is used to transfer facsimile data stored in the personal computer 60 to the portable telephone 50 by infrared rays so as to allow the thus transferred data to be further transferred from the portable telephone 50 to a remote location by radio waves.** Of course, it is also possible to perform communication simply between the portable telephone 50 and the personal computer 60 (emphasis added).

In other words, Nakashima discloses that the IrDA modulation/demodulation integrated circuit device 58 transfers data from a personal computer to a portable telephone via infrared rays, and that this data is further transferred **by the portable phone 50** via radio waves.

Thus, contrary to the Examiner's allegations, Nakashima neither teaches nor suggests that the IrDA modulation/demodulation integrated circuit device 58 is capable of communicating via radio frequency (RF) waves. Instead, Nakashima merely teaches that the data that is transferred by the IrDA modulation/demodulation integrated circuit device 58 via infrared waves is subsequently further transferred via RF waves **by another separate and distinct device.**

Second, Nakashima fails to teach or suggest any specific structural arrangement of a base-band IC, a memory IC and an RF-IC, and certainly fails to teach or suggest the features of a "base-band IC and memory IC being mounted on the first side of said multi-layered substrate, and said RF-IC being mounted on the second side of said multi-

Serial No. 09/884,274

March 28, 2006

Reply to the Office Action dated November 30, 2005

Page 7 of 8

layered substrate” as recited in Applicants’ claim 1.

Furthermore, Nakashima could not possibly teach or suggest the features of a memory IC (ROM 11, RAM 10) mounted on a first side of the multi-layered substrate and the alleged RF-IC mounted on a second side of the substrate because the memory IC (ROM 11, RAM 10) are elements of the alleged RF-IC. Thus, it would be impossible to mount the memory IC (ROM 11, RAM 10) on a first side of the multi-layered substrate and the alleged RF-IC on the second side of the multi-layered substrate. Thus, Applicants respectfully submit that Nakashima fails to teach or suggest a “base-band IC and memory IC being mounted on the first side of said multilayered substrate, and said RF-IC being mounted on the second side of said multi-layered substrate” as recited in Applicants’ claim 1.

Additionally, as acknowledged by the Examiner in the personal interview of March 22, 2006, Nakashima does not teach or suggest the feature of a “shielding ground electrode pattern interposed between the first side of said multi-layered substrate on which said base-band IC and said memory IC are mounted and the second side of said multi-layered substrate on which said RF-IC is mounted” as recited in Applicants’ claim 1. In fact, Nakashima fails to teach or suggest any shielding ground electrode.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Nakashima.

In view of the foregoing amendments and remarks, Applicants respectfully submit that Claim 1 is allowable. Claims 2-4 and 6-10 depend upon Claim 1, and are therefore allowable for at least the reasons Claim 1 is allowable.

In view of the foregoing amendments and remarks, Applicants respectfully submit that this application is in condition for allowance. Favorable consideration and prompt allowance are solicited.

Serial No. 09/884,274
March 28, 2006
Reply to the Office Action dated November 30, 2005
Page 8 of 8

To the extent necessary, Applicants petition the Commissioner for a One-Month Extension of Time, extending to March 30, 2006, the period for response to the Office Action dated November 30, 2005.

The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

Date: March 28, 2006

/Christopher A. Bennett #46,710/
Attorneys for Applicant(s)

Joseph R. Keating
Registration No. 37,368

Christopher A. Bennett
Registration No. 46,710

KEATING & BENNETT, LLP
8180 Greensboro Drive, Suite 850
Tyson's Corner, VA 22102
Telephone: (703) 637-1480
Facsimile: (703) 637-1499